

The geology of Polish Tatra Mountains – detail digital cartographic series of map at scale 1:10 000 based on GIS technology

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Purpose: The aim of the project is to create a series of 25 map sheets of geological map in GIS technology. The poster depicts the technological process of creating maps. From data gathering, geologists terrain explorations, making database structure, creating of digital libraries and symbolization, to data digitalization and topological control.

The purpose is also to present the opportunity of creating interesting final compositions of map sheet with cartographic representation and other solutions of modern cartography.

Methods: In the last century, in traditional form, The Geological Map of Polish Tatra at scale 1: 10 000, was created and printed. Currently it is time to give maps up-to-date form of continuing scientific work of Polish geologists and create a digital version. Some years ago, in The Polish Geological Institute – National Research Institute began cartographic author's compilations, which lead up to gathering existing and creating new and modern geological data.

All these data is gathered in database, so the GIS is made for geology of Tatra mountains. The GIS platform for the digital map is the software of ESRI - ArcGIS Desktop with extensions.

First, the database structure was designed. Each map sheet is created in a separate geodatabase – personal geodatabase in ArcGIS format. Each geodatabase contains datasets. Each dataset collects geological features in logical thematic layers: point, line, polygon layers. Additionally, there are tables-libraries with unique values, stratigraphic and symbology libraries, topographic base maps and other feature classes.

Data collected in geodatabase is symbolized and prepared for the final composition. During this process, there are many technical attribute and topological verifications.

Other products which are created during the project, like elevation model, which looks very interesting as a background for geological data, are also presented.

The final result is a series of 25 sheets at scale 1: 10 000 containing surface geological maps, maps of quaternary bedrock, geological cross-sections and other elements.

Maps are composed in National Coordinate System of Poland – '1992'.

Conclusion: To sum up, it is worth emphasizing that the digital Geological Map of Polish Tatra at scale 1: 10 000 is an attractive product. It is not only the printed version of series of maps but also the logical and compact database.

I believe that it is worth to share this experience with cartographers and other people who are involved in the creation of maps.